



# EXHIBIT K

**Exhibit K****Claim Chart for U.S. Patent No. 10,219,199**

| <b>Claim</b>  | <b>Exemplary Infringement Analysis</b>  |
|---|---|
| <p>1. A method of operating a smartphone to wirelessly provide information to an entity using a first air interface, to wirelessly receive information from the entity using the first air interface; and to wirelessly receive a communications service from a wireless network using a second air interface that differs from the first air interface, wherein the communications</p> | <p>The Accused Products “wirelessly provide information to an entity using a first air interface, to wirelessly receive information from the entity using the first air interface; and to wirelessly receive a communications service from a wireless network using a second air interface that differs from the first air interface, wherein the communications service is received by the smartphone from the wireless network absent involving the entity and wherein the entity functions independently of the communications service.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay satisfies the method recited in claim 1. The method includes operating the iPhone to wirelessly provide information to an entity such as a point-of-sale terminal using a first air interface, such as Near Field Communication (NFC). The method also includes the iPhone wirelessly receiving information from the point-of-sale terminal (the entity) using NFC (the first air interface), and wirelessly receiving a communications service from a wireless network using a second air interface, a cellular data network, that differs from the first air interface. The communications service is received by the iPhone from the wireless network absent involving the point-of-sale terminal (the entity), and the point-of-sale terminal functions independently of the communications service.</p> <div data-bbox="394 922 1472 1166" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>Use Apple Pay for contactless payments on iPhone</b></p> <p>With your Apple Cash, credit, and debit cards stored in the Wallet app  on iPhone, you can use Apple Pay for secure, contactless payments in stores, restaurants, and more.</p> </div> <p><a href="https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios">https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios</a></p> |

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| <p>service is received by the smartphone from the wireless network absent involving the entity and wherein the entity functions independently of the communications service, the method comprising:</p> | <div data-bbox="407 269 1436 578"> <h3>Connect iPhone to a cellular network</h3> <p>Your iPhone automatically connects to your carrier's cellular data network if a Wi-Fi network isn't available. If iPhone doesn't connect, check the following:</p> <ol style="list-style-type: none"> <li>1. Verify that your SIM is activated and unlocked. See <a href="#">Set up cellular service on iPhone</a>.</li> <li>2. Go to Settings  &gt; Cellular.</li> <li>3. Verify that Cellular Data is turned on. If you're <a href="#">using Dual SIM</a>, tap Cellular Data, then verify the selected line. (You can choose only one line for cellular data.)</li> </ol> </div> <p><a href="https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/16.0/ios/16.0">https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/16.0/ios/16.0</a></p> <div data-bbox="407 656 1335 1127"> <h3>When you use Apple Pay in stores</h3> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> |

| Claim  | Exemplary Infringement Analysis  |
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|  | <div data-bbox="405 261 789 293" data-label="Section-Header"> <h3>Background on NFC Technology</h3> </div> <div data-bbox="405 326 1482 378" data-label="Text"> <p>Based on the 13.56 MHz wireless communication protocol, the NFC technology allows <a href="#">wireless communication</a> between two NFC-compliant devices up to 10 centimeters apart.</p> </div> <div data-bbox="405 412 1482 493" data-label="Text"> <p><b>Very convenient</b>, this connection does not rely on Wi-Fi, 4G, LTE or similar technologies, and it doesn't cost anything to use: no need for the user to be skilled, does not need batteries, does not emit RF waves in the absence of a reader (it is a passive technology), NFC is within range everyone's range thanks to the massive deployment of <a href="#">NFC in smartphones</a>.</p> </div> <div data-bbox="384 514 1680 548" data-label="Text"> <p><a href="https://www.st.com/content/st_com/en/support/learning/essentials-and-insights/connectivity/nfc.html">https://www.st.com/content/st_com/en/support/learning/essentials-and-insights/connectivity/nfc.html</a></p> </div> <div data-bbox="384 587 1938 695" data-label="Text"> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> </div> |
| detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity; | <p>The Accused Products use a method that involves “detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay includes detecting that a proximity criterion is satisfied between the iPhone and the point-of-sale terminal (the entity). For example, an iPhone can detect the NFC field radiated by the point-of-sale terminal, and the iPhone will ensure that the proximity criterion for the NFC communication is satisfied in connection with performing a financial transaction via Apple Pay.</p>   |

| Claim | Exemplary Infringement Analysis   |
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|       | <p data-bbox="415 266 982 305"><b>When you use Apple Pay in stores</b></p> <p data-bbox="415 326 1392 537">When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p data-bbox="415 558 1392 740">After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> <p data-bbox="390 764 940 797"><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> |

| Claim  | Exemplary Infringement Analysis   |
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|  | <div data-bbox="394 248 1029 932" style="border: 1px solid black; padding: 10px;"> <p><b>Pay with your iPhone</b></p> <ol style="list-style-type: none"> <li>To use your default card: <ul style="list-style-type: none"> <li>If your iPhone has Face ID, double-click the side button. If prompted, authenticate with Face ID or enter your passcode to open Apple Wallet.</li> <li>If your iPhone has Touch ID, double-click the Home button.</li> </ul> </li> <li>To use a different card, tap your default card to see your other cards. Tap a new card and authenticate.</li> <li>Hold the top of your iPhone near the contactless reader until Done and a checkmark appear on the display.</li> </ol> </div> <p><a href="https://support.apple.com/en-us/HT201239">https://support.apple.com/en-us/HT201239</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |
| in response to at least the proximity condition having been satisfied between the smartphone and | <p>The Accused Products use a method that involves “in response to at least the proximity condition having been satisfied between the smartphone and the entity, establishing a wireless short-range communications link between the smartphone and the entity to provide by the smartphone, using the first air interface, information to the entity and to receive by the smartphone information from the entity.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay includes establishing a wireless short-range communications link (such as an NFC communications link) between the iPhone and the point-of-sale terminal (the</p>   |


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| <p>the entity, establishing a wireless short-range communications link between the smartphone and the entity to provide by the smartphone, using the first air interface, information to the entity and to receive by the smartphone information from the entity;</p> | <p>entity). The iPhone, using NFC (the first air interface), will provide information to the point-of-sale terminal and will receive information from the point-of-sale terminal. The iPhone's detection of the NFC field establishes the communications link between the iPhone and the point-of-sale terminal in preparation to provide and receive information related to the financial transaction. Establishing the wireless short-range communications link is in response to at least the proximity criterion having been satisfied between the iPhone and the point-of-sale terminal.</p> <div data-bbox="411 483 987 526" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>When you use Apple Pay in stores</b></p> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> |

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|  | <div data-bbox="394 253 1031 932" style="border: 1px solid black; padding: 10px;"> <p><b>Pay with your iPhone</b></p> <ol style="list-style-type: none"> <li>To use your default card: <ul style="list-style-type: none"> <li>If your iPhone has Face ID, double-click the side button. If prompted, authenticate with Face ID or enter your passcode to open Apple Wallet.</li> <li>If your iPhone has Touch ID, double-click the Home button.</li> </ul> </li> <li>To use a different card, tap your default card to see your other cards. Tap a new card and authenticate.</li> <li>Hold the top of your iPhone near the contactless reader until Done and a checkmark appear on the display.</li> </ol> </div> <p><a href="https://support.apple.com/en-us/HT201239">https://support.apple.com/en-us/HT201239</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |
| in response to at least the proximity condition having been satisfied between the smartphone and | <p>The Accused Products use a method that involves “in response to at least the proximity condition having been satisfied between the smartphone and the entity and in response to a physiological parameter, wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface.”</p>   |

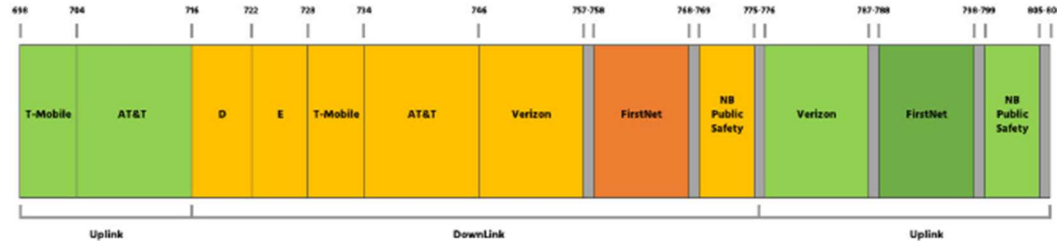


| Claim  | Exemplary Infringement Analysis   |
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| <p>the entity and in response to a physiological parameter, wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface; and</p> | <p>For example, using an iPhone to conduct financial transactions via Apple Pay includes the iPhone wirelessly providing, using NFC (the first air interface), information to the point-of-sale terminal and wirelessly receiving, using NFC, information from the point-of-sale terminal. The iPhone, upon satisfying the proximity condition between the iPhone and the point-of-sale terminal, and in response to a physiological parameter (that is, recognizing and accepting a user's fingerprint, for Touch ID, or facial geometry, for Face ID), provides at least a Device Account Number and a transaction-specific dynamic security code to the point-of sale terminal via NFC. The iPhone receives confirmation of the transaction from the point-of-sale terminal via NFC. These providing and receiving actions occur independently of, and absent involving the point-of-sale terminal in, the iPhone's receipt of the communications service from the wireless network using a cellular data network (the second air interface).</p> <div data-bbox="411 662 984 708" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>When you use Apple Pay in stores</b></p> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> |

| Claim | Exemplary Infringement Analysis  |
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|       | <div data-bbox="394 250 1031 932"> <p><b>Pay with your iPhone</b></p> <ol style="list-style-type: none"> <li>1. To use your default card: <ul style="list-style-type: none"> <li>• If your iPhone has Face ID, double-click the side button. If prompted, authenticate with Face ID or enter your passcode to open Apple Wallet.</li> <li>• If your iPhone has Touch ID, double-click the Home button.</li> </ul> </li> <li>2. To use a different card, tap your default card to see your other cards. Tap a new card and authenticate.</li> <li>3. Hold the top of your iPhone near the contactless reader until Done and a checkmark appear on the display.</li> </ol> </div> <p data-bbox="394 938 940 971"><a href="https://support.apple.com/en-us/HT201239">https://support.apple.com/en-us/HT201239</a></p> <div data-bbox="394 1013 1266 1258"> <p>8. The <b>Issuer bank</b> passes back the “<i>authorization</i>” response to the <b>Payment Network</b>, which in turn passes it back to the <b>Acquirer Bank (Merchant Bank)</b>, which in turn passes it back to the <b>POS</b> terminal, and your transaction is approved on the POS (The POS further transmits this to the iPhone through NFC, and you get a green check on your phone that the transaction was approved).</p> </div> <p data-bbox="394 1265 1283 1297"><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p> |

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|   | Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.  |
| wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity, | <p>The Accused Products use a method that involves “wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay includes the iPhone wirelessly receiving, using a cellular data network (the second air interface), the communications service from the wireless network. The receiving of the communications service occurs absent involving the entity, absent the iPhone providing information to the point-of-sale terminal, and absent the iPhone receiving information from the point-of-sale terminal. For example, the iPhone can continue to receive the communications service while connected with the point-of-sale terminal via NFC.</p> <div data-bbox="399 738 1444 1068" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>Connect iPhone to a cellular network</b></p> <p>Your iPhone automatically connects to your carrier’s cellular data network if a Wi-Fi network isn’t available. If iPhone doesn’t connect, check the following:</p> <ol style="list-style-type: none"> <li>1. Verify that your SIM is activated and unlocked. See <a href="#">Set up cellular service on iPhone</a>.</li> <li>2. Go to Settings  &gt; Cellular.</li> <li>3. Verify that Cellular Data is turned on. If you’re <a href="#">using Dual SIM</a>, tap Cellular Data, then verify the selected line. (You can choose only one line for cellular data.)</li> </ol> </div> <p><a href="https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/16.0/ios/16.0">https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/16.0/ios/16.0</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |
| wherein the wireless short-   | The Accused Products use a method “wherein the wireless short-range communications link used by the first air interface is based upon unlicensed frequencies,”  |

| Claim  | Exemplary Infringement Analysis   |
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| <p>range communications link used by the first air interface is based upon unlicensed frequencies,</p>                   | <p>For example, the wireless short-range communications link used by NFC (the first air interface) is based upon the unlicensed 13.56 MHz frequency.</p> <div data-bbox="411 451 1106 542" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>How Does Near-Field Communication Work?</b></p> <p>Near-field communication is a wireless connectivity technology that is based on RFID. It uses induction coupling to enable communication between two compatible devices that are close. It enables users to automatically transfer data bi-directionally between two NFC-enabled devices by just touching both of them or by bringing them close to each other.</p> <p>NFC operates at the globally unlicensed 13.56 MHz frequency. It has three different data transfer rates – i.e., 212 kbit/s, 106 kbit/s, and 424 kbit/s.</p> </div> <p><a href="https://www.spiceworks.com/tech/networking/articles/what-is-near-field-communication/">https://www.spiceworks.com/tech/networking/articles/what-is-near-field-communication/</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |
| <p>wherein the second air interface uses a wireless communications link that is based upon licensed frequencies, and</p> | <p>The Accused Products use a method that involves “wherein the second air interface uses a wireless communications link that is based upon licensed frequencies.”</p> <p>For example, the cellular data network (the second air interface) uses a wireless communication link that is based upon frequencies licensed from the Federal Communications Commission.</p>  |

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|  | <p data-bbox="401 266 1346 305"><b>Why Do Cellular Carriers Have Multiple Frequencies?</b></p>  <p data-bbox="401 683 1451 919">Cellular carriers need licenses from the FCC to use specific cellular bands. Usually, one license within a large band only gives carriers rights to a small section. This is known as a block or channel. As you'll notice later, many carriers utilize similar bands. However, they operate on different blocks to avoid interfering with each other. Smaller bands, on the other hand, are not made up of multiple blocks and are usually exclusive to one carrier.</p> <p data-bbox="401 935 1220 967"><a href="https://www.wilsonamplifiers.com/blog/frequencies-by-provider/">https://www.wilsonamplifiers.com/blog/frequencies-by-provider/</a></p> <p data-bbox="401 1008 1944 1219">Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant. Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |
| wherein the first air interface is not involved in providing the | <p data-bbox="401 1247 1959 1312">The Accused Products use a method that involves “wherein the first air interface is not involved in providing the communications service to the smartphone.”</p> <p data-bbox="401 1352 1822 1385">For example, NFC (the first air interface) is not involved in providing the communications service to the iPhone.</p>  |

| Claim                                     | Exemplary Infringement Analysis   |
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| communications service to the smartphone. | <div data-bbox="405 297 1085 345"> <h3>Set up cellular service on iPhone</h3> </div> <div data-bbox="405 365 1381 449"> <p>Your iPhone needs a physical SIM or an eSIM to connect to a cellular network. (Not all options are available on all models or in all countries and regions. On iPhone 14 models purchased in the U.S., you can only use eSIM.) Contact your carrier to get a SIM and set up cellular service.</p> </div> <div data-bbox="382 479 1413 513"> <p><a href="https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/ios">https://support.apple.com/guide/iphone/set-up-cellular-service-iph3f11fba92/ios</a></p> </div> <div data-bbox="401 602 791 636"> <h3>Background on NFC Technology</h3> </div> <div data-bbox="401 665 1484 719"> <p>Based on the 13.56 MHz wireless communication protocol, the NFC technology allows <a href="#">wireless communication</a> between two NFC-compliant devices up to 10 centimeters apart.</p> </div> <div data-bbox="401 753 1484 834"> <p><b>Very convenient</b>, this connection does not rely on Wi-Fi, 4G, LTE or similar technologies, and it doesn't cost anything to use: no need for the user to be skilled, does not need batteries, does not emit RF waves in the absence of a reader (it is a passive technology), NFC is within range everyone's range thanks to the massive deployment of <a href="#">NFC in smartphones</a>.</p> </div> <div data-bbox="382 854 1684 888"> <p><a href="https://www.st.com/content/st_com/en/support/learning/essentials-and-insights/connectivity/nfc.html">https://www.st.com/content/st_com/en/support/learning/essentials-and-insights/connectivity/nfc.html</a></p> </div> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p> |